GOVERNMENT OF INDIA
AGRICULTURE
LOK SABHA

UNSTARRED QUESTION NO:6450
ANSWERED ON:09.05.2005
RESEARCH CENTRE AND PROJECT
Athawale Shri Ramdas

Will the Minister of AGRICULTURE be pleased to state:

(a) the details of the research centres and projects being run under the auspices of Indian Agriculture Research Council in various States, particularly in tribal dominated areas those of including Maharashtra, location-wise;

(b) the amount allocated/spent by the Government in respect to each above-cited centre and project during the last three years;

(c) the achievements made by the aforesaid centres, State-wise; and

(d) the extent to which the performance of the aforesaid centres affected the agriculture yield in the country during the aforesaid period?

Answer

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE(SHRI KANTILAL BHURIA)

(a) & (b): The details of the Indian Council of Agricultural Research Institutes, National Research Centres and projects located in various States of the country including Maharashtra alongwith amount allocated/spent by these are given in Annexure-I.

(c) The details are given in Annexure-II.

(d) The data indicate that the yield/productivity of foodgrains alone has improved from 1562 kg. per ha.(during 2002-03) to 1707 kg. per ha. (during 2003-04). A single variety of wheat PBW343 has occupied around 70 lakh ha. of the Country. Similarly, hybrid rice having yield advantage of more than 1 tonne over the existing varieties is presently occupying about 5.5 lakh ha. in the Country. The milk production was raised from 87.3 million tonnes (during 2002-03) to 91.1 million tonnes (during 2003-04). The egg production also increased from 40.3 billion number of eggs (during 2002-03) to 91.1 billion number of eggs (during 2003-04). Similarly, fish production also increased from 59.66 lakh tonnes (during 2001-02) to 62.00 lakh tonnes (during 2002-03). However, fish production figures for 2003-04 and production figures for rest of the commodities mentioned above for the year 2004-05 are in process of finalization.

Annexure-I

SCHEME-WISE BUDGET ESTIMATES, REVISED ESTIMATES AND ACTUAL EXPENDITURE FOR 2002-03 TO 2004-05

(Rs. in Lakh)

Sl.No.	Name of the Scheme and location	2002-03			2003-04			2004-05
		BE	RE	Actual Exp.	BE	RE	Actual Exp.	BE & Antic-ipated Exp.
I.	CROP SCIENCE							
	1. National Bureau of Plant Genetics Resources, New Delhi							
	National Bureau of Plant Genetics Resources, New Delhi	200.00	255.00	256.35	200.00	210.00	315.59	686.94 494.00
	i. AICRP on Under Utilised Crops	60.00	77.00	59.99	77.00	94.00	93.93	115.76 115.00
	ii. NRC-DNA Finger Printing, New Delhi	70.00	in	in	100.00	100.00	-	244.50 135.00

NBPGR NBPGR

2. IARI, New Delhi

IARI, New Delhi (amt included for 940.00 895.00 730.06 875.00 400.00 411.57 2108.94 900.00
Indo Israel for 02-03 & 03-04 in IARI)
i. AICRP on Pesticides Residues 230.00 230.00 283.48 230.00 285.25 225.50 557.94 225.00
ii. AICRP on Nematodes 200.00 200.00 143.38 200.00 200.00 119.65 218.36 213.00
iii. NRC Plant Biotechnology 100.00 in IARI in IARI 160.00 160.00 95.80 350.00 400.00
iv. Directorate of Maize Research, New Delhi. 250.00 225.00 217.72 210.00 208.50 207.71 346.84 320.00
v. AICRP on Maize 350.00 400.00 523.22 400.00 466.00 473.18 320.00 308.00
vi. National Centre for Integrated 40.00 20.00 19.95 30.00 32.00 32.01 45.00 34.00
Pest Management
vii. AICRP Floriculture (Amt in Hort)

Network Programme on Insect new 101.46 0.00
Biosystematics (Part of IARI)

Network Progject on Transgenics new 270.00 0.00
(Part of NRC Plant Biotechnology)

3. Central Rice Research Institute, Cuttack

Central Rice Research Institute, Cuttack 300.00 250.00 189.32 250.00 153.00 140.18 405.75 400.00
i. Directorate of Rice Research, Hyderabad 120.00 120.00 119.50 130.00 130.00 129.70 310.97 324.00
ii. AICRP Rice, Hyderabad 500.00 600.00 704.36 600.00 675.00 676.39 626.08 620.00

4. Vivekananda Parvitya Krishi 180.00 220.00 220.00 220.00 220.00 220.00 184.00 200.00
Anusandhan Sansthan, Almora

5. Indian Institute of Pulses Research, Kanpur

Indian Institute of Pulses Research, Kanpur 200.00 200.00 199.67 200.00 200.00 199.98 463.50 340.00
i. AICRP on Chickpea 475.00 475.00 476.44 475.00 475.00 474.36 309.59 287.00
ii. AICRP on MULLARP 600.00 600.00 605.86 600.00 600.00 600.56 500.80 448.00
iii. AICRP on Pigeon Pea 400.00 400.00 399.29 400.00 400.00 399.51 448.83 400.00
iv. AICRP on Arid Legumes 125.00 135.00 112.51 135.00 135.00 135.46 160.00 140.00

6. Directorate of Wheat Research, Karnal
Directorate of Wheat Research, Karnal 100.00 80.00 79.83 90.00 90.00 89.68 111.50 150.00
Karnal
i. AICRP on Wheat & Barley Improvement Project 560.00 600.00 899.88 600.00 732.00 732.00 470.00 470.00

7. NRC Sorghum, Hyderabad
NRC Sorghum, Hyderabad 100.00 110.00 109.66 120.00 120.00 113.99 219.15 350.00
i. AICRP Sorgum, Hyderabad 270.00 277.00 298.91 277.00 300.00 302.29 265.00 350.00
ii. AICRP on Pearl Millets, Jodhpur 250.00 215.00 202.92 215.00 152.00 151.53 264.21 225.00
iii. AICRP on Small Millets, Bangalore 300.00 180.00 151.15 180.00 154.00 160.25 231.62 243.00

8. Indian Grassland and Fodder
Research Institute, Jhansi

Indian Grassland and Fodder Research Institute, 250.00 250.00 200.00 250.00 250.00 250.00 402.88 400.00
i. AICRP on Forage Crops 290.00 370.00 470.00 370.00 366.00 366.00 400.00 400.00
ii. AICRP on Agroforestry (amt in NRM)
iii. NRC Agroforestry (amt in NRM)

9. Central Tobacco Research Institute, Rajamundry

Central Tobacco Research Institute, Rajamundry 125.00 100.00 90.00 100.00 125.00 124.99 236.00 250.00
i. Network Project on Tobacco 100.00 100.00 103.15 100.00 135.00 135.00 137.14 125.00

10. Indian Institute of Sugarcane Research, Lucknow

Indian Institute of Sugarcane Research, Lucknow 150.00 190.00 189.76 190.00 173.00 146.23 244.00 250.00
i. Sugarcane Breeding Institute,Coimbatore 125.00 125.00 84.60 125.00 86.00 89.57 373.86 400.00
ii. AICRP on Sugarcane, Lucknow 240.00 240.00 207.95 240.00 275.00 274.77 262.29 250.00

11. Central institute of Cotton Research, Nagpur

Central institute of Cotton Research, Nagpur 120.00 120.00 120.00 120.00 102.00 101.99 208.00 250.00
i. AICRP on Cotton , Coimbatore 390.00 410.00 410.00 410.00 472.00 471.86 428.00 400.00
ii. Central Research Institute for Jute and 200.00 175.00 141.74 175.00 100.00 99.70 311.00 380.00
Allied Fibres, Barrackpore
iii. AICRP on Jute and Allied Fibres 200.00 150.00 149.95 150.00 150.00 149.99 75.00 64.00
iv. Technology Mission on Cotton (TMC) 380.00 380.00 380.00 420.00 392.55 255.00 318.00
Technology Mission on Jute (TMJ)

12. Directorate of Oilseed Research, Hyderabad

Directorate of Oilseed Research, Hyderabad 100.00 136.00 136.00 146.00 115.79 115.79 354.94 260.00
i. NRC Groundnut, Junagarh 100.00 80.00 86.52 90.00 90.00 84.12 277.00 190.00
ii. AICRP on Groundnut, Junagarh 250.00 250.00 248.48 250.00 392.48 350.71 280.09 254.00
iii. NRC Soybean, Indore 120.00 100.00 73.31 110.00 88.70 79.27 126.00 276.00
iv. AICRP on Soybean, Indore 175.00 195.00 139.72 195.00 202.00 201.46 185.50 192.00
v. NRC - Rapeseed & Mustard(NRCRM), Bharatpur 100.00 80.00 69.90 95.00 45.00 45.00 224.17 100.00
vi. AICRP on Rapeseed & Mustard, Bharatpur 300.00 360.00 360.00 360.00 410.00 422.24 345.01 345.00
vii. AICRP on Sunflower, Safflower, Castor, 400.00 400.00 398.43 400.00 400.00 399.81 381.16 270.00
Hyderabad
viii. AICRP on Linseed, Kanpur 160.00 160.00 110.62 160.00 175.77 130.68 230.72 200.00
ix. AICRP on Sesame and Niger, Jabalpur 160.00 160.00 138.30 160.00 275.80 237.64 265.80 235.00

13. Project Directorate of Biological
Control, Bangalore

Project Directorate of Biological Control, 70.00 40.00 31.00 50.00 25.80 25.80 25.80 190.00
Bangalore
i. AICRP on Biological Control, Bangalore 100.00 100.00 87.65 100.00 146.80 146.80 171.43 144.00
ii. AICRP on Honey Bee Research & Training, 160.00 160.00 105.29 160.00 145.00 180.35 146.66 126.00
Hisar
iii. Network on White Grubs & Other Soil 100.00 100.00 52.31 100.00 100.00 82.63 100.87 115.00
Arthropods, Jaipur
iv. Network on Agricultural Acarology, 100.00 100.00 35.28 100.00 100.00 90.33 141.02 150.00
Bangalore
v. Network on Economic Ornithology, Hyderabad 100.00 100.00 51.86 100.00 100.00 97.64 107.41 100.00
14. Directorate of Seed Research, Mau
Directorate of Seed Research, Mau Updated 351.05 250.00
i. AICRP component of NSP-Crops 700.00 710.00 777.38 710.00 700.00 703.22 686.89 555.00
15. National Bureau of Agril. Important 100.00 80.00 43.70 115.00 112.68 112.51 308.57 350.00
Micro-organisms (NBAIM), New Delhi
Network on Rodent Control, Jodhpur 115.00 115.00 74.18 115.00 118.22 97.95 120.00 120.00
(Reflected in NRM)

TOTAL(CROP SCIENCE) 12900.00 12800.00 12190.53 13100.00 13089.79 12707.41 18500.00 16000.00

II. HORTICULTURE

16. Indian Institute of Horticultural

Research, Bangalore

Indian Institute of Horticultural Research, 300.00 300.00 250.00 300.00 390.00 390.00 450.00 450.00
Bangalore
i. AICRP Tropical Fruits, Bangalore 160.00 160.00 481.75 157.00 203.75 202.06 260.00 260.00
ii. Central Institute of Sub Tropical 230.00 200.00 200.00 200.00 220.00 220.00 300.00 275.00
Horticulture, Lucknow
iii. AICRP Sub Tropical Fruits, Lucknow 120.00 120.00 250.00 127.00 194.60 194.60 200.00 135.00
iv. NRC Litchi, Muzaffarpur 175.00 150.00 61.00 225.00 75.00 71.98 220.00 150.00
v. NRC Citrus, Nagpur 160.00 160.00 109.99 160.00 295.00 294.94 220.00 210.00
vi. NRC Grapes, Pune 240.00 145.00 144.99 145.00 145.00 144.99 180.00 180.00
vii. NRC Banana, Trichi 220.00 150.00 95.40 150.00 166.50 159.12 170.00 190.00

17. Central Institute of Temperate Horticulture, 150.00 175.00 112.97 175.00 154.00 154.00 225.00 175.00
Srinagar

18. Central Institute of Arid
Horticulture, Bikaner

Central Institute of Arid Horticulture, Bikaner 200.00 200.00 102.00 250.00 121.90 121.72 360.00 220.00
i. AICRP Arid Fruits 90.00 90.00 132.76 105.00 150.86 150.49 120.00 105.00

19. Indian Institute of Vegetable
Research, Varanasi

Indian Institute of Vegetable Research,Varanasi 240.00 200.00 175.15 225.00 225.00 222.22 365.00 340.00
i. NRC for Mushroom, Solan 180.00 150.00 85.29 120.00 123.80 123.79 150.00 130.00
ii. AICRP Mushroom, Solan 80.00 80.00 78.84 88.00 93.00 64.41 105.00 95.00
iii. AICRP Vegetables, Varanasi 230.00 260.00 249.80 256.00 261.00 259.90 325.00 350.00
iv.National Seed Project Vegetables, Varanasi 130.00 100.00 94.00 97.00 97.00 96.56 120.00 140.00
v. NRC Onion and Garlic, Pune 230.00 160.00 84.72 130.00 110.00 104.32 180.00 180.00

20. Central Potato Research Institute, Shimla

Central Potato Research Institute, Shimla 240.00 210.00 209.30 200.00 297.07 281.56 450.00 406.00
i. AICRP Potato 125.00 125.00 125.03 122.00 159.40 164.12 235.00 235.00
ii. Central Tuber Crops Research 160.00 170.00 203.30 190.00 230.00 228.41 250.00 250.00
Institute, Trivandrum
iii. AICRP Tuber Crops 80.00 80.00 80.00 78.00 67.00 67.00 100.00 103.00

21. Central Plantation Crops
Research Institute, Kasargod

Central Plantation Crops Research 225.00 230.00 229.94 220.00 205.00 204.99 380.00 340.00
Institute, Kasargod
i. AICRP Palms 120.00 120.00 99.69 118.00 97.12 97.12 110.00 127.00
ii. NRC Cashew, Puttur 90.00 90.00 89.95 100.00 87.00 86.38 140.00 100.00
iii. AICRP Cashew 80.00 80.00 57.49 77.00 77.00 58.09 80.00 90.00
iv. NRC Oil Palm, Pedavegi, A.P. 120.00 150.00 159.94 160.00 160.00 132.94 200.00 175.00

22. Central Agricultural Research 240.00 240.00 291.11 250.00 270.00 267.79 300.00 300.00
Institute, Port Blair

23. Indian Institute of Spices Research, Calicut
Indian Institute of Spices Research, Calicut 200.00 190.00 189.99 190.00 125.00 124.88 190.00 150.00
i. AICRP Spices, Calicut 120.00 120.00 157.00 117.00 151.00 151.00 150.00 130.00
ii. NRC Seed Spices, Ajmer 175.00 165.00 61.94 210.00 170.00 170.00 200.00 175.00

24. NRC Medicinal and Aromatic Plants, Anand

NRC Medicinal and Aromatic Plants, Anand	250.00	200.00	195.00	200.00	175.00	175.00	315.00	175.00
i. Network on Medicinal and Aromatic Plants	110.00	120.00	165.80	138.00	148.00	148.00	160.00	130.00
ii. Network on Betelvine	90.00	70.00	51.00	57.00	62.00	62.00	115.00	120.00
AICRP Florticulture (reflected in CS at 2)	110.00	120.00	135.66	138.00	143.00	142.86	165.00	135.00
NRC Makhana (reflected in NRM at 29) (integrated with ICAR Res. Com for Eastern Region as centre)	110.00	50.00	6.76	225.00	120.00	59.01	200.00	100.00
NRC Orchids (reflected in NRM at 36)	170.00	170.00	93.92	240.00	140.00	140.00	310.00	130.00
NRC Pomegranate (Scheme not approved)	50.00							
TOTAL (HORTICULTURE)	6000.00	5500.00	5311.48	6000.00	5910.00	5736.24	8000.00	6956.00
III. NATURAL RESOURCE MANAGEMENT								
25. National Bureau of Soil Survey and Land Use Planning, Nagpur	400.00	380.00	324.67	425.00	332.00	329.71	489.50	340.00
26. Central Soil and Water Conservation Research & Training Institute, Dehradun	400.00	250.00	220.00	350.00	310.00	308.67	450.00	400.00
27. Indian Institute of Soil Sciences, Bhopal								
Indian Institute of Soil Sciences, Bhopal	200.00	197.00	137.46	225.00	95.00	91.86	420.00	200.00
i. AICRP in Micro Secondary & Pollutant Elements in Soils and Plants	150.00	140.00	150.00	199.00	197.44	200.00	200.00	
ii. Network Bio-fertilizers	100.00	35.00	32.39	100.00	32.00	92.00	100.00	
iii. AICRP on Soil Test with Crop Response	200.00	200.00	179.92	200.00	195.00	188.85	195.00	210.00
iv. AICRP on Long Term Fertilizer Experiments	85.00	95.00	154.62	85.00	142.00	139.65	98.00	100.00
28. Central Soil Salinity Research Institute, Karnal								
Central Soil Salinity Research Institute, Karnal	300.00	100.00	90.00	325.00	226.68	226.67	380.00	205.00
i. AICRP on Salt Affected Soils & use of Saline Water in Agriculture	150.00	220.00	204.96	150.00	175.00	175.00	175.00	175.00
29. ICAR Research Complex for Eastern Region, Patna								
ICAR Research Complex for Eastern Region, Patna	500.00	250.00	199.59	500.00	289.00	287.49	500.00	500.00
i. NRC for Makhana, Darbhanga in Hort								
30. Water Technology Centre for Eastern Region, Bhubaneshwar								
Water Technology Centre for Eastern Region, Bhubaneshwar	250.00	165.00	134.27	265.00	102.00	97.81	200.00	150.00
i. AICRP on Water Management Research, Bhubaneswar	460.00	510.00	508.52	460.00	460.00	460.00	530.00	450.00
ii. AICRP on Ground Water Utilisation, Bhubaneswar	100.00	100.00	59.58	100.00	89.71	89.71	145.00	145.00
31. Central Research Institute of Dryland Agriculture, Hyderabad								
Central Research Institute of Dryland Agriculture, Hyderabad	175.00	165.00	101.49	185.00	195.00	183.18	300.00	215.00
i. AICRP Dryland Agriculture, Hyderabad	500.00	850.00	950.00	500.00	610.00	610.00	665.00	860.00
ii. AICRP on Agrometeorology, Hyderabad	170.00	190.00	190.00	170.00	234.00	234.00	230.00	150.00
iii. Network on Impact, Adaptation and Vulnerability of Indian Agrl. to Climate Change	new	new		163.05	163.00			

32. Central Arid Zone Research Institute, Jodhpur

Central Arid Zone Research Institute, Jodhpur 250.00 100.00 88.00 250.00 190.00 189.95 300.00 248.00
i. Network Project on Rodent Control

33. Project Dte. on Cropping System
Research, Modipuram

Project Dte. on Cropping System Research, 200.00 130.00 165.87 200.00 128.00 128.00 270.00 265.00
Modipuram
i. AICRP Cropping System Research 520.00 800.00 1050.00 520.00 804.00 804.00 760.00 760.00
(including network on Organic Farm.)
Network on Organic Farming new new
34. NRC-Weed Science, Jabalpur
NRC-Weed Science, Jabalpur 145.00 145.00 128.00 145.00 145.00 128.17 266.95 267.00
i. AICRP Weed Control, Jabalpur 200.00 465.00 0.27 200.00 270.00 269.93 420.00 430.00

35. ICAR Research Complex Goa 125.00 90.00 89.75 125.00 205.00 204.97 360.00 262.00

36. ICAR Research Complex for
NEH Region, Barapani

ICAR Research Complex for NEH Region, Barapani 450.00 500.00 493.36 600.00 600.00 597.45 800.00 800.00
i. NRC on Yak
ii. NRC on Mithun Medziphema, Nagaland
iii. NRC on Orchids, Pakyong, Sikkim
NRC Agroforestry (reflected in CS at 8) 170.00 150.00 125.98 170.00 110.00 109.99 245.00 160.00
AICRP Agroforestry (reflected in CS at 8) 300.00 300.00 323.99 300.00 300.00 299.99 345.50 345.00
- 23.00 7.22 -
TOTAL(NRM) 6500.00 6550.00 5959.91 6700.00 6438.39 6352.49 9000.00 8100.00

IV. AGRICULTURAL ENGINEERING

37. Central Institute of Agricultural
Engineering, Bhopal

Central Institute of Agricultural 295.00 225.00 188.18 285.00 287.00 284.93 256.50 258.00
Engineering, Bhopal
i. Network Project on RNAEM, Bhopal 12.50 12.50 12.50 12.50 12.50 7.00

ii. AICRP on FIM, Bhopal 295.00 320.00 427.05 300.00 500.00 555.90 449.00 405.00
iii. AICRP on Human Engineering and 80.00 80.00 79.95 80.00 73.00 72.99 114.31 93.00
Safety in Agriculture (HESA), Bhopal
iv. AICRP on Renewable Sources of 195.00 225.00 244.42 198.00 255.43 255.05 227.48 161.00
Energy for Ag. And Agro Based Indus.
v. AICRP on Utilization of Animal 87.50 92.00 90.74 91.50 92.07 92.08 104.22 89.00
Energy (UAE), Bhopal

38. Central Institute on Post harvest
Engineering and Technology, Ludhiana

Central Institute on Post harvest 340.00 167.00 134.62 335.00 130.00 129.62 371.00 320.00
Engineering and Technology, Ludhiana
i. AICRP on Application of Plastic 45.00 51.00 54.67 47.00 47.00 46.89 95.00 76.00
in Agriculture
ii. AICRP on PHT 295.00 321.50 299.51 299.00 299.00 290.68 833.84 677.00
iii. AICRP on Processing handling & 45.00 50.00 25.03 47.00 50.00 40.31 in PHT in PHT
storage of Jaggery and Khandsari, Lucknow

39. Indian Lac Research Institute, Ranchi	125.00	100.00	46.16	125.00	103.00	98.16	134.00	124.00
40. Central Institute of Research on Cotton Technology, Mumbai	220.00	206.00	172.91	215.00	225.00	224.91	255.15	235.00
41. National Institute of Research on Jute & Allied Fibre Technology, Calcutta	165.00	150.00	97.03	165.00	126.00	125.40	147.00	137.00
1.17								
TOTAL(AGRIL. ENGG)	2200.00	2000.00	1861.44	2200.00	2200.00	2216.91	3000.00	2582.00
V. ANIMAL SCIENCE								
42. National Bureau of Animal Genetic Resources, Karnal								
National Bureau of Animal Genetic Resources, Karnal	400.00	365.00	184.26	190.00	367.25	240.90	360.00	300.00
i. Network projecton Animal Genetic Resources	in NBPGR	150.13	230.00	in NBAGR	116.18	210.00	210.00	
43. National Dairy Research Institute including NRC Animal Biotechnology, Karnal								
National Dairy Research Institute including NRC Animal Biotechnology, Karnal	700.00	700.00	640.02	750.00	711.90	712.15	825.00	700.00
i. NP on R&D Support for Process Upgradation of Indigenous Milk Products for industrial application	150.00	150.00	52.36	180.00	150.00	105.99	-	-
ii. Pilot Project on Integrated Rural Development Focussed on Dairying	new	new	17.13	275.00	275.00			
44. Central Sheep and Wool Research Institute, Avikanagar, Rajasthan								
Central Sheep and Wool Research Institute, Avikanagar, Rajasthan	475.00	385.00	385.00	430.00	375.00	374.82	400.00	300.00
i. Network Programme on Sheep Improvement	-	90.00	71.43	110.00	100.00	100.27	280.00	200.00
45. Central Institute for Research on Goats, Makhdoom								
Central Institute for Research on Goats, Makhdoom	345.00	300.00	490.00	315.00	360.00	359.99	460.00	300.00
i. AICRP on Goat Improvement	80.00	100.00	83.71	110.00	110.00	108.87	210.00	210.00
46. Central Institute for Research on Buffaloes, Hissar								
Central Institute for Research on Buffaloes, Hissar	250.00	200.00	160.00	240.00	100.00	100.00	200.00	200.00
i. Network Project on Buffaloes Improvement	175.00	225.00	160.86	225.00	320.00	328.70	450.00	300.00

47. National Institute of Animal Nutrition and Physiology

National Institute of Animal Nutrition and Physiology 470.00 400.00 249.31 400.00 356.00 355.42 500.00 300.00
i. AICRP- Improvement of Feed Sources & Nutrient Utilisation for raising Animal Production 250.00 210.00 378.72 290.00 258.00 277.47 335.00 255.00

48. NRC on Camel, Bikaner 200.00 200.00 167.62 200.00 209.81 209.80 360.00 300.00

49. NRC on Equines, Hisar 225.00 200.00 109.96 200.00 160.00 159.26 525.00 350.00
NRC on Equines, Hisar (included Veterinary Type Culture)

50. Project Directorate ? Cattle
Project Directorate ? Cattle 300.00 300.00 329.84 350.00 330.00 326.59 500.00 300.00
i. AICRP on Cattle Research in PD in PD in PD in PD in PD
51. PD on Foot & Mouth Disease, Mukteshwar 150.00 175.00 22.55 200.00 200.00 202.62 300.00 245.00
52. Central Avian Research Institute, Izatnagar
Central Avian Research Institute, Izatnagar 300.00 230.00 207.57 240.00 305.00 304.99 475.00 350.00
i. Project Directorate on Poultry, Hyderabad 350.00 220.00 148.81 400.00 410.00 144.02 200.00 200.00
ii. AICRP on Poultry - 175.00 211.25 in PD in PD 280.82 355.00 355.00
53. Indian Veterinary Research Institute, Izatnagar
Indian Veterinary Research Institute, Izatnagar 875.00 800.00 797.99 825.00 825.00 1084.39 1250.00 1100.00
i.Network on Gastro Intestinal Parasitism(GIP) 200.00 225.00 84.71 280.00 280.00 135.97 275.00 275.00
ii. Network on Haemorrahigc Septcamia in GIP 52.65 in GIP 80 81.98 in GIP in GIP
iii. Network Programme Blue Tongue Disease in GIP 63.96 in GIP 70 75.74 in GIP in GIP
iv. PD on Animal Disease Monitoring and Surveillance 200.00 200.00 147.37 200.00 59.75 75.08 390.00 390.00
High Security Animal Disease 300.00 275.00 193.96 275.00 275.00
54. NRC on Meat and Meat Products Technology, Hyderabad 275.00 175.00 52.61 200.00 226.00 226.00 400.00 150.00
55. NRC on Pig
NRC on Pig 330.00 200.00 41.96 210.00 340.00 57.15 180.00 180.00
i. AICRP-Pig 100.00 11.45 130.00 in NRC 10.65 290.00 260.00
NRC Mithun (reflected in NRM) 250.00 250.00 84.55 220.00 191.00 190.89 210.00 210.00
NRC Yak (reflected in NRM) 250.00 250.00 243.87 300.00 270.00 260.56 285.00 285.00
-5.27
TOTAL(ANIMAL SCIENCE) 7500.00 7100.00 5973.21 7700.00 7289.71 7024.38 10500.00 8500.00

VI. FISHERIES

56. Central Marine Fisheries Research Institute, Cochin

Central Marine Fisheries Research Institute, Cochin 325.00 325.00 309.98 380.00 333.00 333.00 577.00 404.00
i. Central Institute Brackishwater Aquaculture, Chennai 225.00 222.12 97.50 250.00 240.04 247.76 269.00 264.00

57. Central Inland Capture Fisheries Research Institute, Barrackpore
Central Inland Capture Fisheries Research Institute, Barrackpore 400.00 400.00 289.70 440.00 465.00 465.03 408.00 408.00
i. National Research Centre on Cold Water Fisheries, Nainital 263.00 263.00 101.78 220.00 93.00 90.71 223.00 181.00
58. Central Institute of Fisheries Technology, Cochin 330.00 332.00 246.23 350.00 348.00 347.93 550.00 523.00
59. Central Institute on Fisheries Education,Mumbai 697.00 797.88 1287.72 860.00 1041.00 1087.41 1041.00 798.00
60. Central Institute of Freshwater Aquaculture, Bhubneshwar 260.00 260.00 165.39 285.00 281.50 281.10 490.00 480.00
61. National Bureau of Fish Genetic Resources, Lucknow 200.00 200.00 168.67 215.00 188.50 188.41 442.00 442.00

TOTAL(FISHERIES) 2700.00 2800.00 2666.97 3000.00 2990.04 3041.36 4000.00 3500.00

VII. AGRICULTURAL STATISTICS & ECONOMICS

62. Indian Agricultural Statistical Research Institute
Indian Agricultural Statistical 200.00 200.00 134.49 200.00 88.53 88.52 250.00 200.00
Research Institute, New Delhi
i. National Centre for Agril. Economics 100.00 50.00 39.70 50.00 49.55 48.23 250.00 200.00
& Policy Research, New Delhi

TOTAL(ESM) 300.00 250.00 174.19 250.00 138.08 136.75 500.00 400.00

VIII. AGRICULTURAL EXTENSION

63. Krishi Vigyan Kendras (New + Old) 9465.86 8983.75 8866.59 9350.00 9342.80 8911.58 16730.00 16318.00
64. NRC for Women in Agriculture, Bhubaneswar 384.14 366.25 153.90 200.00 200.00 198.21 170.00 137.00
65. Directorate of Information & Publication 150.00 150.00 23.15 50.00 24.00 23.96 100.00 45.00
in Agriculture (DIPA)

TOTAL(AGRIL. EXTENSION) 10000.00 9500.00 9043.64 9600.00 9566.80 9133.76 17000.00 16500.00

IX. AGRICULTURAL EDUCATION

66. Strengthening of Agricultural Education

Strengthening of Agricultural Education - - 6094.00 -
AICRP on Home Science 333.00 563.00 250.00 435.00 414.82 350.00 350.00
Dev. & Strengthening of State 5490.00 5020.44 5770.00 5972.00 5938.19 9145.00 8445.00
Agricultural Universities
Dev. & Strengthening of PG Edn. 185.00 210.97 250.00 246.00 244.15 300.00 234.00
In Deemed Universities
Dev. & Strengthening of Agri. Edn. 130.00 99.52 90.00 87.00 85.00 150.00 150.00
in Central Universities
Rural Awareness Work Experience (RAWE) 250.00 316.69 120.00 185.34 183.19 300.00 230.00
Best Teacher Award 5.00 5.00 5.00 3.45 2.92 5.00 1.00
Accreditation Board 50.00 5.00 40.00 2.50 2.05 10.00 5.00
Preparation of University Level Text Book 15.00 10.00 15.00 2.50 2.20 10.00 5.00
Emeritus Science Scheme 60.00 58.00 75.00 56.21 55.86 130.00 80.00
(including 25 additional slots)
Centres of Advance Studies(including 6 new CAS) 200.00 125.00 235.00 160.00 157.89 300.00 250.00
Establishment of Jammu University 200.00 94.38
AHRD Spill over 32.00 32.00 22.79 -0.13
Centre of Excellence

67. National Academy of Agricultural Research & 250.00 250.00 227.73 250.00 238.00 198.73 300.00 150.00
Management (NAARM), Hyderabad

TOTAL(AGRIL. EDUCATION) 7200.00 6790.00 6344.52 7400.00 7388.00 7284.87 11000.00 9900.00

68. CENTRAL AGRICULTURAL UNIVERSITY, IMPHAL
Central Agricultural University 2300.00 3300.00 2500.00 1715.00 1760.93 3829.00 3829.00
i. DARE 50.00 50.00 50.00 47.66 47.65 50.00 50.00

TOTAL(CAU+DARE) 2350.00 3350.00 1822.00 2550.00 1762.66 1808.58 3879.00 3879.00

XI ICAR HEADQUARTERS

69. Strengthening and Modernization
of ICAR Headquarters

Strengthening and Modernization 230.00
of ICAR Headquarters
Modernization of Office Space & Facilities 67.35 226.15 200.00 60.00
ICAR Library 5.80
Publicity & Public Relations 90.00 40.00 28.33 40.00 31.03 70.00 40.00
Intellectual Property Right(IPR) 30.00 27.00 0.87 20.00 2.26 70.00 40.00
Support to Prof. Soc. including NAAS 220.00 195.00 200.00 160.00 160.00
Agriculture Scientist Recruitment Board 10.00 10.00
ICAR HQ Including facilities at NASC 600.00 188.00

TOTAL(HEADQUARTER) 950.00 450.00 96.55 500.00 268.00 265.24 500.00 300.00

phased out schemes of IX Plan + - - - - - - - -
pipeline+catch up grant

National Board for Strategic research - - - - - - - -

TOTAL (DBS) 55707.99 85879.00 76617.00

XII EXTERNALLY AIDED PROJECTS

70. National Agri. Technology Project (WB) 15350.0 15360.0 16570.08 18400.0 17012.0 14385.41 14000.0 13200.00
71. Indo-French proposal Seabass 50.00 50.00 41.52 100.00 100.00 84.62 121.00 121.00
Breeding & Culture
72. Technology Mission on Horticulture
for North-East Region#
Pipeline projects/lump sum amount
requirement for new initiatives
Surplus funds for NEH Region 3500.00 - - - - - - 61.98
(Rs 43.98 from Horticulture
and 18 lakh from Engg.)

GRAND TOTAL (I to XII) 77500.00 72500.00 68056.04 77500.00 74153.47 70178.02 100000.00 90000.00

Catch up Grant - - - - - - 4211.00 -

Annexure-II

ACHIEVEMENTS MADE BY THE ICAR INSTITUTES

CROP SCIENCE

Plant Genetic Resources

- A total of 37 exploration missions were undertaken and 1,598 accessions collected.
- About 14,000 accessions were evaluated for morphological and biochemical traits.
- A total of 34,994 accessions were added to the National Genebank (Seed Genebank- 34,374 accessions, Cryo Genebank-480 accessions and In vitro Genebank- 90 accessions).
- A total of 19,782 accessions (43,300 samples) including trial material and germplasm lines were exchanged (19,645 imported and 117 exported) and processed for quarantine clearance.
- 4863 accessions of indigenous active collections were supplied for use in different crop improvement programmes to breeders and other PGR researchers.
- Four training programmes were organized on various aspects of PGR management.

- Sequence Tagged Microsatellites (STMS) fingerprinting of rice (164 accessions), wheat (69 accessions), cotton (60 accessions), French bean (22 accessions), soybean (32 accessions), brinjal (96 accessions) and Brassica (80 accessions)
- Amplified Fragment Length Polymorphism (AFLP) and Inter Simple Sequence Repeat profiling of fingermillet (94 accessions), peas (38 accessions), brinjal (48 accessions), Plantago (50 accessions) and vetiver (25 varieties) completed.
- Primers designed for detection of transgenes lines in seed material.
- Terminator gene tested in cotton, wheat and rice transgenic lines using probe specific to Cre sequence.

Food Crops

- In rice, 19 varieties and one hybrid have been released. Among new rice varieties, Dhanrasi for shallow lowlands of Andhra Pradesh, Maharashtra, Karnataka and Tamil Nadu; and one hybrid RH-204 for irrigated areas of Andhra Pradesh, Karnataka, Tamil Nadu, Haryana and Rajasthan were released.
- Eleven wheat varieties, namely, VL 832, PBW 502, HD 2824, Raj 403, NW 2036, DBW 14,HS 420, (Shivalik) HS 375, HI 1500, MP 4010, VL 829 were released for different agro-ecologies.
- Eleven maize cultivars Pratap composite, Pusa Early Hybrid 5, Pragati, Deccan Hybrid 115, BH 2187, PRO 345, JKMH 68-2, Bio 9682, Pratap Maize, Vivek Comp. DSH 4 (SB 401A x SPV 570), a rabi season sorghum hybrid, has been released and recommended for cultivation in northern Karnataka.
- Four hybrids of pearl millet have been identified for release at the national level, and five pollinated varieties and a hybrid have been released at the state level.
- Foxtail millet variety SR 51 has been notified for cultivation in Rajasthan, Proso-millet variety GPU 21 has been identified for Karnataka and Tamil Nadu.
- Five improved varieties identified in mungbean, pea and rajmash and lentil.
- Seven pigeonpea lines converted into CGMS background for use in hybrid breeding programme.
- Elite lines of chickpea (5), pigeonpea (12), mungbean (1), and urdbean (10) identified having resistance to specific diseases/nematode.
- Isolated, characterized and confirmed genetic transformants possessing Bar (marker gene) and Bt (Cry 1Ab, Cry 1Aa) in chickpea and pigeonpea.
- Mungbean cv. Samrat (55-60 days) identified as productive and remunerative catch crop after wheat in rice-wheat system.

Commercial Crops

- In Cotton, two hybrids viz. PKV HY.5 (intra-hirsutum) and PKV DH.1 (intra- arboreum), and two open-pollinated varieties viz. Parbhani Turab (PA 255) (G. arboreum) and NH. 545 (G. hirsutum) have been notified for commercial cultivation in Maharashtra. Also, open-pollinated varieties Pratap Kapi-1 (RBDV.7) and Veena have been notified for commercial cultivation in Banswara region of Rajasthan and Andhra Pradesh respectively.
- Promising /elite genotype identified for high yield, fibre length and ginning outturn included ? IC 336182, PSB CT 8, UPL C2, PCB CT 10, NM 970513 in G. hirsutum, and CINA 316, 318, 343 and 344 in G. arboretum.
- 8 genotypes for long fibre length, 5 for fibre strength, 16 for high ginning outturn were identified in upland cotton.
- Forecasting model for Helocoverpa in Central zone has been developed and validated.
- Immunochromatography and ELISA kits were developed to detect the quality of insecticides and to detect and monitor H. armigera resistance to insecticides.
- In Sugarcane, variety CoS 94270 (Sweta) was identified for cultivation in north-west agro-climatic zone. It is a mid-late maturing variety derived through clonal selection.
- 24 improved varieties of different maturity duration were identified from three research stations of Sugarcane Breeding Institute: Coimbatore (Early-5, Midlate-12), Motipur (Early-3, Midlate-2), Karnal (Early-1, Midlate-1)
- A biofertilizer formulation of Gluconacetobacter diazotrophicus (Ad IS 100) in FYM Pressmud based carrier containing 108 ? colony forming units (cfu) per gram of formulation has been standardized.
- In tobacco, A Chama type high yielding, superior quality Jati tobacco variety ?Manasi? was released for cultivation in North Bengal Region.
- Blackgram, groundnut and soybean are found to be good preceding crops for getting higher leaf hybrids of succeeding tobacco in NLS conditions.
- Insect pest infestation was less in IPM plots as compared to farmers? method of crop protection (FMCP).

- Cropping system with soybean in kharif and jowar in rabi recorded highest net returns under Nipani conditions. Groundnut-rabi jowar system was found the second best.
- In Jute & Allied Fibres, Four promising lines vis. Tossa jute S-19 (Subala), Sunnhemp SH-4(Sailesh), Kenaf MT-150 (Nirmal) and White jute C-80 (Mitali) were identified for commercial release.
- Establishment of ramie plantation for fibre yield in non-traditional areas of Maharashtra, Goa and Tamil Nadu has become successful.
- Protocol for eco-friendly low cost green technology of ramie fibre degumming has been developed.

- Low-cost, eco-friendly and less time consuming technology for jute retting has been standardized for practical use.
- IPM module for management of diseases and insect pests in jute?oriented cropping sequence has been standardized and validated in farmers? fields.

Oilseeds

- A hybrid in castor and 15 promising varieties of sunflower (1), safflower (1), mustard (3), Gobhi sarson (1), groundnut (5), soybean (1) and niger (3) identified for various parts of the country.
- Nine new sunflower hybrids and 6 experimental hybrids in Indian mustard identified as promising.
- Breeding lines/donors identified for resistance against Fusarium wilt, Botytis grey rot, white rust, powdery mildew, Sclerotinia rot and staghead formation in oilseed crops.
- The cry1Ac gene driven by the promoter pced obtained for utilization against lepidopteran pests.

Plant Biotechnology

- A set of genes and promoters were cloned successfully, which included i) a lectin gene from lentil,
(ii) new Bt (cry) genes from native strains of soil bacterium Bacills thringiensis,

(iii) (E) B-farnesence synthase gene from Indian peppermint,
(iv) fruit ripening related cDNAs using microarrays,
(v) ascorbate peroxidase gene from wheat,
(vi) genes for abiotic stress induced transcription factors for wheat,
(vii) promoter for a protease intribitor gene form cowpea
- Two synthetic genes encoding Cry2Aa and Cry1F delta-endotoxin of Bacillus thuringiensis respectively were constructed. These two genes were found effective against cotton bollworm (Helicoverpa armigera) and tobacco caterpillar (Spodoptera litura) respectively, in tobacco transgenics.
- Transgenics developed and evaluated included
(i) transgenic pigeon pea with synthetic cry IAc gene under CaMV355 promoter,
(ii) transgenic Indian mustard over expressing osmotin gene, and
(iii) transgenic tomato over expressing osmotin gene.
- Two gene transgenics of the Indica rice variety IR-64 have been tested in the field and few line have been identified showing high level of resistance to manual infestation of yellow stem borers.
- Insect bioassays using first instar larvae of Spodoptera litura (Tobacco caterpillar) revealed significant in planta insecticidal activity of Bt gene Vip3Aa14 in tobacco transgenics.
- DNA sequence finishing of the chromosome 11 region of rice consisting of 57 large insert clones (1 PAC, 54 BACs and 2 Fosmids) was completed and the sequences were assembled into single contigs. These are very high quality DNA sequences without any significant error. Genes have been predicted for 48 of these clones and all the clones were found to have genes at fairly uniform density.
- Genomic and cDNA libraries of sugarcane constructed for isolation of EST and microsatellite markers. Besides, 435 microsatellite markers were developed from 4773 EST based unigenes available in the public domain.
- Two bacterial blight resistance genes xa13 and Xa21 were combined with Basmati quality traits through molecular marker assisted selection. Two promising lines were selected and entered in the All India Coordinated Trial for multilocation evaluation.

- Molecular tagging of Pi-kh gene for blast resistance in rice was achieved using CAPS and STMS markers.
- AFLP marker linked to the gene for fertility restoration of the male sterile line of mustard based on the wild species Moricandia arvensis was identified.
- A new CMS line of Brassica juncea was developed based on the cytoplasm of the wild species Diplotaxis erucoides. This male sterile line was found to be associated with altered transcription of the atpA gene of the mitochondria.

National Seed Project (Crops)

- The AICRP National Seed Project (Crops) has a network of 35 Breeder Seed Production Units and 22 Seed Technology Research Units at various SAUs and ICAR institutes.
- Looking into the over all progress of the project in recent past and increasing importance of seed in the era of global trade, Indian Council of Agricultural Research has upgraded the Project to the level of Directorate named as Directorate of Seed Research during X Plan. The Financial sanction has been issued during 2004-05.
- Breeder Seed Production: A total of 4021.38 tonnes of breeder seeds have been produced; major quantities belong to oilseeds (1811.57 tonnes) and cereals (1469.54 tonnes) followed by pulses (674.58 tonnes), forages (38.57 tonnes) and fibre crops (27.12 tonnes). Besides, additional breeder seeds were also produced against the indent of state level varieties.
- Seed Technology Research: The commendable work has been done on variety characterization based on morphological characteristics, chemical tests and electrophoresis of 14 major field crops namely; wheat, rice, pearl millet, maize, sorghum, chickpea, pigeonpea, mungbean, urdbean, soybean, groundnut, sunflower, castor and cotton. The information generated will be highly useful and beneficial for quality seed production and DUS testing programme under PPV&FR legislation. The manuals of majority of these crops have been published and distributed among users and crop breeders. Left over crops are in the final stage of compilation/ publication. Other achievements of the project are in the areas viz. economics of hybrid seed production, storage, seed health and processing.

HORTICULTURE

Twenty eight different fruit varieties were found better in yield and quality under crop improvement. In banana , a new species of Ensete from Kodaikanal hill of Tamil Nadu and a new sub species of Musa acuminata from Anaimalai hill of Western Ghats were collected and 138 accessions were collected from Andaman and Nicobar Islands and North Eastern States. Sixty-one exotic collections were added. Drip irrigation method was standardized in mango, Nagpur mandarin and pomegranate. Drip irrigation coupled with mulching was found optimum for increasing fruit production and water use efficiency in pomegranate and grape. IPM including bio-agents was worked out in mango, banana, citrus and grapes for important insect pests. The storage life was extended upto 30 days at 8?C by packing the mango fruits individually in micro-perforated polyethylene or polypropylene films.

Molecular analysis of genetic variability in coconut and cocoa using RAPD, AFLP and Microsatellite markers has provided valuable information.

Tissue culture protocols for mass production of disease free seedlings have been standardized for coconut and arecanut plantlets, High value medicinal, cash and ornamental plants as compatible intercrops in palm based gardens for main land, sub-Himalayan terai region and Lakshadweep islands have yielded good results. Integrated Pest and Disease management technologies have resulted in farmer friendly management packages. Concerted efforts made in physiological and molecular determinants of drought tolerance in palms and simple drought management practices. Fabrication of multi commodity dryers, packaging technologies for coconut products, pharmacological applications of arecanut alkaloids. Information technology, bioinformatics, economic analysis and statistical designs suitable for plantation crops were developed. Training of consumer oriented technologies like vermicompost and mushroom production from palm wastes, coconut chips and snow ball tendernut production besides many other edible products prepared from coconut to find employment opportunities.

Surveys conducted by the AICRPS centres enriched the germplasm collection in 12 spices to a total of about 6943 accessions. Fifty eight accessions resistant to major pests and diseases in different spice crops were also identified. In seed spices the quality evaluation in respect of volatile oil resulted in shot listing high quality accessions.In seed spices six new varieties were identified for release viz. RZ-223 in cumin, RMt-305 in fenugreek, Hisar-Surabhi in coriander, Guj. fennel-II in fennel. A new high yielding cinnamon variety PPI (C) 1 released suitable for lower elevation.A fenugreek genotype RM-5/90 with an yield level of 780 kg/ha was identified for non-irrigated areas of Bihar. A high yielding cardamom clone CL-692 identified is under on farm evaluation. Hybridization in cumin was found successful. Azospirillum in combination with inorganic nitrogen and FYM increased the yield in most of the spice crops. The role of micronutrients in increasing the yield of ginger and coriander was well established. In black pepper cuttings planted in solarized soil fortified with Trichoderma harzianum and VAM reduced the incidence of Phytophthora disease and increased sprouting of cuttings. For the control of Phytophthora in black pepper application of Metalaxyl Gold MZ and Trichoderma harzianum combination was found to be highly effective. Application of carbofuran (100 g plant-1) followed by imidacloprid (0.5 ml/lit) was found to be effective against root grub in cardamom. Seed rhizome treatment with hot water + T. harzianum and application of neem cake is beneficial for reducing the rhizome rot disease in ginger. Management technologies against rhizome rot of ginger and turmeric leaf spot and leaf blotch in turmeric, coriander wilt were developed. A two-year rotation schedule for both ginger and turmeric recommended for reducing the disease incidence.

A tissue culture method has been developed for large scale multiplication of Aloe using shoot buds as explants. Three morphotype were identified such as compact, normal and narrow leafed. Two promising lines of Safed mulsi (NRCCB-1 and NRCCB-2) have

been identified developed by clonal selection). The lines are under multiplication. Double row raised bed system was found to be most suitable in Safed musli was significantly highest as compared to ridge and furrow method and triple raised bed planting system.

NATURAL RESOURCE MANAGEMENT

- District level soil resource mapping for perspective land use planning developed.
- Soil series of Bihar ,Assam, Meghalaya and Tripura for land use planning finalized.
- Aquaculture based farming system around Beeranchak village, Patna developed in a participatory mode.
- Zero tillage proved its worth on several winter crops besides wheat after rice. The minimum tillage with crop residue mulch reduced runoff (14%) and soil loss (35%) substantially.
- The soil loss due to water erosion in the coastal belt of peninsular India was from 5 to over 40 t /ha/ year. The growth of cashew plants was better under bio-engineering measures than vegetative barrier alone in sea coast of Goa.
- The planting of guava alongwith Stylosanthes hamata (leguminous fodder) in trenches gave better performance of fruit component on degraded hillocks of Eastern Ghats, Orissa.
- The Integrated Nutrient Management employing Sulphitation Pressmud (SPM) and FYM with sub-optimal fertilizer NPK has increased the annual productivity of rice-wheat system.
- Frontline demonstrations were carried out on farmers? fields to demonstrate the usefulness of soil test based fertilizer applications on oilseeds.
- 25% NP fertilizer could be saved through integrated nutrient management in tomato and brinjal .
- The incorporation of humic acid (2%) as an additive to lignite and vermiculite carrier based cultures improved the shelf life biofertilizers.
- The Integrated Plant Nutrient Supply module of soybean-wheat cropping system standardized.
- The use of raw sewage water on a reclaimed alkali soil demonstrated.
- Efficient cropping planning under situation of delayed monsoon for rainfed areas formulated.
- Rice-potato-wheat system was found more remunerative than rice-wheat system .
- A single post-emergence application of clodinafop (TOPIC) @ 60g/ha 3-4 weeks after sowing effectively controlled wild oat in wheat in Jabalpur, M. P.
- 131 plants Sps. comprising of herbs (37.2%), shrubs (22.1%) and trees (19.9%) identified for herbal farming in arid region.
- The application of pendimethalin @ 1.0 kg/ha as pre-emergence spray and as sand mix after 30 days of planting proved to be a cost-effective weed control for onion.
- Citronella maritini (Palmarosa) was found to be a potential aromatic plant for sodic soils.
- The crop yield (black gram) in deep ploughing was 12.7 per cent higher than normal ploughing under 9 years old Shism (Dalbergia sissoo) tree.
- In situ moisture conservation practices conserved 10 to 15% higher moisture than control and favoured tree growth in aonla (Emblica officinalis) based agrihorticultural system.
- 4 years studies on performance of goat and sheep each 10 and their offsprings maintained on 2 ha silvipastoral system revealed a benefit cost ratio of 1.07 at discount rate of 10%.
- Nineteen provenances of Acacia nilotica ssp. Indica have been collected from central India. In addition, 21 plus tress of Acacia nilotica having good tree form and five trees for high gum yield were also selected.

- Soil series Assam(107) and Tripura(48) have been finalized for printing . Land use maps have been developed for Kamrup, Nalbari and Barpeta districts of Assam.
- Intensive Integrated Farming System (IIFS) in North Eastern Hills (NEH) Region developed.
- Sloping Agricultural Land Technology (SALT) ? An appropriate technology for restoration of degraded lands was proved to be most suitable for restoration of Jhum fallow/degraded lands in eastern Himalayas.
- Immunodiagnostic Kit for rapid detection of Gastrointestinal parasitic infection developed for rapid diagnosis of gastro intestinal parasites from serum of infected animals.
- DNA Based Diagnosis of Animal Diseases have been developed and standardized.

AGRICULTURAL ENGINEERING

Farm Implements and Machinery(FIM)

- Designed and developed the following equipments/implements namely, prototype of light weight power tiller, tractor-operated lug wheel puddler, animal drawn raised bed former, self-propelled biasi cultivator, tractor operated orchard sprayer, tractor-operated plastic mulch laying machine, tractor drawn mole plough for vertisols, solar tunnel dryer, fruit grader and soy fortified kodo biscuit.
- Design and Develop following equipment namely manually operated seed-drill, sugarcane, multiple purpose equipment, banana clump remover, three ? row rotary weeder, engine operated sugarcane leaf stripper, rice straw chopper, power tiller operated air assisted seed-drill, power tiller operated orchard sprayer with turbo nozzeles, stalk shredder, and high capacity pigeon pea thresher by centres of AICRP on FIM.
- Prototype feasibility testing of several equipment were undertaken by different centres.
- Frontline demonstration of large number of improved equipment was carried out at farmers field.

- Computer aided designs of agricultural implements and machines was developed by CIAE, Bhopal. CIAE manufactured and supplied prototypes, trained subject matter specialists, farmers, rural youths in agri-clinic and agri-business and entrepreneurship development.
- Studies on mechanized cultivation of minimum tillage dry seeded rice in wheat straw fields carried out with no till drill and roto-till drill resulted in increase in grain yield by 2.1% with 15-5% savings in operational energy and 9.6% saving in cost of production under straw incorporated condition. No tillage and minimum tillage cultivation of wheat after combine harvest of rice showed no tillage drilling saves 70.15% time, 67.16% energy and 66.39% cost effective.
- The initial trials on self propelled chopper type sugarcane combine harvester at Mulkhed, Taluka Mulshi, Maharashtra gave satisfactory performance.
- Anthropometric data of 2883 agricultural workers was collected(1536 male and 1348 female)
- Anti-vibration devices for increasing comfort of power tiller and tractor operators developed.
- Ergonomic evaluation of six equipment was carried out for assessing their suitability to women workers.

Post Harvest Engineering

- Design and developed tomato grader, porous bricks for evaporative cooling, dehumidified air drying system, custard pulp extractor, non-destructive method to measure maturity, hydro-cyclone system for cassava starch milk concentration and sweetness of mango and solar air heater.
- Pilot Plant of whole tomato handling and packaging established.
- Post harvest behavior of onion, potato, tomato, broccoli and capsicum crop influenced by pre-harvest treatments.
- Low cost storage technology of evaporative cold room adopted by farmers.
- Efficacy of kinnow peels against Helicoverpa armigera (Hubner) and major grain storage pests established.
- Commercialization of turmeric boiler.
- Mechanics of jaggery cooling developed.
- Established agro processing center in rural and remote areas.
- Microbiological studies on vinegar production from sugarcane juice and processing, packaging and storage of betel leaf were carried out.
- Cultivation of cauliflower, tomato and chilly in greenhouse recorded 330.40%, 250.00% and 221.00% higher yield, respectively in comparison with their cultivation in open conditions.
- A low capacity screen filter for micro-irrigation system for greenhouses developed.
- Colouring pigments from three microbes viz. Serratia sp., Monascus sp. and one from anaerobic bacteria were studied for dye production efficiency and application methods were standardised.
- Study conducted by CIRCOT showed that a maximum of about 80 % of the total oil content from cottonseed could be recovered in 24 hours when enzymes were used in the extraction process. This extraction process also yields powdered peptone whose property is similar to that obtained from conventional solvent extraction means.
- CIRCOT developed a method for processing cotton fabrics with plasma in order to find out to the extent this treatment can substitute wet pre-processing. The effect of plasma on whiteness, yellowness, water absorbency, viscosity and dyeing behaviour of cotton fabrics has been assessed. Plasma treatment can replace the conventional alkali scouring and bleaching treatments without having any deleterious effect on dyeing properties.
- A survey was conducted in and around Kolhapur (Maharashtra) to find out the utility of High Volume Instrument (HVI) and Advanced Fibre Information System (AFIS) in enabling export-oriented units (EOU) to monitor the quality of raw material and end product. The yarn realisation achieved by EOUs is around 70.
- Large scale trials of chemical retting of jute ribbon was carried out successfully with 100 kg jute plants in the institute campus. The fibre obtained was strong, fine, lusturous and above W-3 grade. Two field trials were carried out in the farmer?s field in Hooghly district on chemical retting of jute plants. The quality of the jute fibre obtained was much better than the fibre obtained by conventional retting by microbial process.
- NIRJAFT developed composite for jute and allied fibres using ramie, sisal, sunhemp, banana fibre etc. it also developed technologies for utilization of agro and industrial residue of jute for making pulp, paper, boards, briquett etc.
- A large number of technologies & products using jute fibre developed such as, assessment of jute fibre characters & its overall grading; extraction of jute fibre in low volume of water such as ribbon retting, chemical and dry retting; a ribboner machine modernisation of the measuring equipment such as bundle strength tester and fineness meter; miniaturisation and indigenisation of breaker card etc.

Energy Management In Agriculture

- Under AICRP on RES, the following equipment and technologies were developed such as, liquid slurry applicator; a 100 kg / d capacity solid-state anaerobic digestion system for paddy straw; solar dryer for powdered products and demonstration of pilot scale biomethanation plant for effluent of sago industry.

- Operational Research Demonstrations were carried out for solid-state fermentation of biogas plants of Janta design, double pot smokeless durable cook-stove, domestic solar dryer, Himshakti biogas plant, Pant Tarai biogas plant and biomass gas stoves.
- Engine testing and fuel properties determination facilities were developed for evaluating selected vegetable oils as alternate fuel for the CI Engines.

Other Achievements include

- KVK/TTC organized 63 vocational trainings for 1290 farmers/ farm women and 30 trainings for 401 rural youth on employment generation, 27 sponsored trainings for 965 participants and 18 trainings for 129 subject matter specialists.
- SPU centre organized 05 trainings for 87 upcoming entrepreneurs and 7 trainings on preparation of soy based food products for 125 rural women.
- Summer School on Mechanization of rice production system for increased productivity and Winter School on Value addition and enterprise development based on soybean were organized by CIAE, Bhopal.
- 466 prototypes of 38 different designs costing Rs. 18,28,400 were produced in Prototype production Centre, while 3017 prototypes of different designs costing Rs 46,39,500 were produced through local manufacturers for supply to different centres and organizations.
- 3358 prototypes of 71 different designs costing Rs 52,62,560 were supplied to various organization/ farmers/ entrepreneurs.
- Awareness camp on nutritious soy products was organized at Field Research Laboratory (FRL), Leh under the ICAR-DRDO collaborative programme.
- In order to address the problems confronted by the industry, Governmental efforts in the form of Technology Mission on Cotton, Technology Upgradation Fund, setting up of Technology and Apparel Parks are going on strongly. These programmes provide a synergistic effort to private initiatives in this sector to improve its competitiveness.

ANIMAL SCIENCE

- In collaboration with Military Farms 15080 Frieswal cows have been produced with the lactation yield of 3069 kg and peak yield of around 14.27 kg.
- Twelve lakh doses of semen frozen and over six lakh doses distributed to various Military Farms, SAUs, State AH Departments, NGOs and farmers adopted under Field Progeny Testing Project at BAIF Development Research Foundation, Urulikanchan, Punjab Agricultural University, Ludhiana and Kerala Agricultural University, Mannuthy.
- Sixty one Frieswal bulls have been progeny tested so far and some of them given to farmers for genetic improvement of local cattle.
- Under Indigenous Breeds Project, Ongole bulls and Hariana bulls have so far been used for test matings.
- For promoting duck farming in the coastal districts of Jharkhand around 5000 ducklings were supplied.
- Seven strains namely CARI NIRBHEEK, CARI SHYAMA, HITCARI, UPCARI, VANARAJA, GRAMAPRIYA (WHITE), GRAMARIYA (Multicoloured) specially suitable for backyard poultry farming have been released to poultry farmers .
- Six breeds of Sheep (Gaddi, Malpura, Jaisalmeri, Karna and Gurez), four breeds of Goats (Chegu, Black Bengal, Parbatsari and Gaddi), two breeds of Horse (Spiti and Marwari) were fully characterized.
- Area specific mineral mixture developed to compensate the deficiency of minerals.
- Complete feed blocks developed for feeding of animals during scarcity and draught conditions.
- More than 40 non-conventional feeds and 100 complete feeds identified for growing and milch animals.
- Identified 9 varieties of indigenous fodder for yak and analyzed for the tannin and phenolic contents, mineral profile and proximate contents.
- Freezing protocols for buck semen developed .
- Semen studies undertaken in camel, mithun and yak and physiological behaviour of yak, mithun and double humped camel studied.
- Radioimmunoassay of progesterone developed for generating basic data on reproductive cycle of cattle to improve reproductive efficiency.
- Ultra-sonography used to monitor follicular development and reproductive ailments like repeat breeding.
- A potent immuno-diagnostic antigen for the early diagnosis of liver fluke and Gastro-intestinal parasites identified. A novel biological control through fungi has been evolved for the control of haemonchosis.
- A test has been developed to diagnose Bovine Immuno-deficiency virus in cattle and buffaloes.
- Molecular epidemiology of FMD has been carried out to assess the extent of infection and prevalence of virus in the country. The full length cDNA of the second most common serotype of FMD virus Asia 1 in India has been constructed and nucleotide data deduced by sequencing.
- PCR based diagnostic has been standardized for detection of Classical swine fever virus (Hog cholera), Listeria of food origin, sheep and goat pox differentiation and Rinder pest and PPR differentiation
- MCF and BVD antigen/genome from imported Australian cattle and detection of Avian Influenza sub-type H-9 for the first time in the country by H A and H I detected and the ingress of exotic diseases controlled.
- For management of fractures in large animals, studies conducted on a newly designed linear skeletal fixator provided better and stable fixation in fracture management than in conventional fixator.
- Pregnancy diagnosis in equines using equine chorionic gonadotropin (ECG) standardized and a technique developed, which enables diagnosis of pregnancy in mares as early as 30 days after insemination.
- The virus stains of Foot and Mouth disease commercialized for increasing vaccine production in the country and the technology of cystoscope commercialized.
- Process parameters for mechanized production of basundi using conical process vat were standardized.
- Method of manufacture of acceptable quality of khoa from cow milk was developed

using nanofiltration of cow milk and addition of whey protein concentrate.
- Eco-friendly earthen pots for packaging of dahi were developed. The weight of earthen pot was substantially reduced by using special clay and shrinkage of dahi was reduced by shellac coating of earthen pots. The shelf life of dahi in these pots was higher than that of polystyrene cups.
- A process based on osmotic dehydration has been developed for the production of a ready-to-reconstitute instant Ras Malai and bagundi mixes
- A prototype twin screw cooling and working system was designed and developed for the mechanized production of ghee-based butter.
- A mineral mixture supplement was developed for dairy cows and buffaloes. At the farmers field the supplementation increased milk yield by 0.5-0.6 kg/animal/day, reduced breeding problems and improved breeding efficiency.
- Process standardized for long life kalan-traditional dahi based product of Kerala.
- Improvement of buffalo meat using arecanut and tenderization of buffalo meat.
- Improvement of shelf-life of chicken meat by acetic acid treatment.
- Quality evaluation of Haleem-traditional meat product of Hyderabad.

FISHERIES

- In vitro marine pearl production through tissue culture technique has been done successfully in Indian Pearl Oyster Pinctada fucata and in the abalone Haliotis varia
- Two species of sand lobster (Thenus orientalis, Scylaarus rugosus) were successfully bred in captivity and larval cycle completed in three to four weeks time.
- Domestication and captive breeding of the Kuruma shrimp Matapenaeus japonicus was done successfully upto F-3 generation.
- Giant Freshwater Prawn, Macrobrachium rosenbergii has been bred in captivity using inland saline water and post larvae raised with suitable iomic amendments without the use of sea water.
- Smoked products were prepared from freshwater fish Catla catla.
- Pen culture of prawn and carp was done in Mathura bheel with production of 675 kg/ha within 130 days of culture operation.
- Ecological survey of Doyang reservoir in Nagaland was carried out and the results showed that the water quality of the reservoir is very much conducive for fish growth.
- Sperm cryopreservation techniques for endangered red tailed barb Gonoprocterus curmmca was developed.
- Induced maturation and spawning of grass carp at high altitude have been done successfully.

AGRICULTURAL ECONOMICS AND STATISTICS

Indian Agricultural Statistics Research Institute has been engaged in conducting research, teaching and training as well as providing advisory services in the discipline of Agricultural Statistics and Computer Applications. The problem of analyzing the data between and within locations of the NRC on Rapeseed and Mustard was handled. There was heterogeneity both between and within locations. The data was also non-normal. Box-Cox transformation was applied and the data analysis was done. However, in some cases even after the transformation the data remained non-normal. The problem of analysis of this type of data was also investigated.

While discussing the planning of a long term experiment for PDCSR, Modipuram. It was suggested that a split plot design may be used. It was recommended to have large plot sizes to accommodate mid-course bifurcation of the plot, if required. It was also suggested that a blank plot may also be included in the design to accommodate any other treatment during the course of the experimentation.

An experiment was conducted as a simple lattice in 81 combinations of hybrids / genotypes by CCS HAU, Hisar. The procedure of analysis of unbalanced data for obtaining variance components like genotypic and phenotypic variances and co-variances was suggested. A pilot survey was conducted for developing methodology for estimating the cost of production of coconut in Kerala. This study was sponsored by Coconut Development Board, Kochi, Kerala

Developed indices for statistical evaluation of agricultural field experiments. These indices are improvement over the indices developed earlier in the sense that these indices incorporate more information about the design. Three associate class partially balanced incomplete block designs were developed and their applications were made to partial diallel crosses for estimating the general combining ability of lines. A software ? Agri-designer? was developed for generating these designs as well as analyzing the data generated. Efficient designs were generated for studying the competition effect of treatments for experimental situations where the treatments from neighboring plots compete with each other for resources thus masking or over representing the effect of treatments. The competition may be from the right or left or from both the sides. A model was developed for forecasting sugarcane yields using multiple marked chains. The model is able to forecast the yields with good precision. Similarly, a model was developed for forecasting the loss in yield due to weeds. Empirical investigations were made for studying the influence of fixed effects on the

estimates of heritability. A study was undertaken for developing statistical procedures for selecting genotypes simultaneously for yield and stability. In another study, technical efficiency analysis of Rice Wheat system in Punjab was carried out. A methodology was developed for obtaining the estimates of crop yields at small area level (block level) by making use of the farmers? estimate (eye estimate) as auxiliary information. It has been found that the double sampling procedure of estimating crop yields at block level by making use of the farmers? estimate leads to a considerable improvement in precision as compared to the estimator obtained without making use of the farmers? estimate. Another survey was conducted on a large scale for assessment of harvest and post harvest losses.

Software was developed for online information system on personnel management in ICAR. This software has been found to be very useful.

A Beta-version of computer software for the analysis of spatial variability and interpolation (SVI) has been developed. Statistical Package for Agricultural Research (Windows Version)-SPAR 2.0 was developed. This is improvement over the earlier version SPAR-1 as it includes some more new modules. Several short-term training programs were conducted in Information Technology.

The Library has been identified as a Regional Library under National Agricultural Research System of the country. It plays a vital role in meeting the information needs of the in-house users as well as users from the NARS. It provides library, documentation and information services to the Scientists, Staff, Students and Researchers of the Institute as well as users from ICAR Institutes and State Agricultural Universities. The following websites were developed/ modified/ updated by the Institute during the period under report.

Name of the website	Website in
Meteorology data base pertaining to weather data from ICAR Institutes	http://www.iasri.res.in/meteorology/default.htm
Agricultural Data Book	http://iasri.res.in/agridata
Hindi Sewa Link	http://iasri.res.in/hindex.asp
Integrated National Agricultural Resources Information System	http://www.inaris.gen.in
Expert System of Extension	http://www.iasri.res.in/exsyex
Project Information and Management System	http://www.pimsnet.gen.in
National Information System on Animal Experiments	http://172.16.3.161:8080/nisae/jsp/signproc.jsp

National Centre for Agricultural Economics and Policy Research (NCAP), is an exclusive social science research institution. The Centre has expanded its research areas and linkages with other organizations and maintained its track record of performance in terms of research output, strengthening social science linkages and capacity building within NARS, and enhancing ICAR participation in agricultural policy decisions. Policy oriented research on current and emerging areas was under the focus aiming at delivering quality output within stipulated timeframe. Salient research achievements include;

- assessing the impact of technologies,
- quantifying the magnitude of water insecurity in the coming years and rules for optimum allocation of scarce water,
- evaluating state water policies,
- lessons from China for improvement of Indian R&D system,
- importance of enhancing R&D investment in the eastern and arid and semi-arid regions of India, identification of drivers of diversification,
- dairy contract farming and small livestock holders,
- tips for revitalizing dairy industry,
- vulnerability and adaptation to weather induced climate change in rural households in Orissa,
- costs of compliance of food safety measures,
- principles for effective deployment of agricultural science for development,
- gains from rainfall insurance,
- ICT innovations in rural India,
- O&M reforms in R&D system for enhanced institutional efficiency,
- micro-finance through self-help groups for social empowerment of women farmers, etc.

Besides focused research in the mandated theme areas, several new initiatives were undertaken to fulfill the Centre`s HRD mandate of strengthening social science linkages and capacity within NARS. One very significant contribution of NCAP during this period relates to institutionalization of PME mechanisms in NARS. The Centre?s website is regularly updated with greater value addition like access to the soft copies of NCAP publications in the web site. NCAP is a recognized training Centre under Colombo Plan of Government of India and conducting advance training programmes in priority agricultural policy research areas for national and international participants. NCAP is also recognized as one of the hub institutions by Ministry of Finance for policy research networking in agriculture and food security.

AGRICULTURAL EXTENSION

Achievements

- Trained 6.1 lakh farmers and farm women by conducting 21,864 training programmes in the areas of Agril. Extension, Agri-Engineering, Agro-forestry, Live Stock Production and Management, Crop Production, Fisheries, Bio-technology, Horticulture Soil fertility, Women in Agriculture and others
- Trained 1.39 lakh rural youth by conducting 5952 training programmes in the areas of Agriculture extension. Agri-Engineering, Agro-forestry, Live Stock Production and Management, Crop Production, Fisheries, Bio-technology, Horticulture Soil fertility, women in Agriculture and others
- Rural crafts and other income generating activities.
- Trained 68,708 extension functionaries by conducting 2701 training programmes.
- Produced 7490.7 tonnes of seeds and 59.89 lakhs saplings/seedling for availability to the farmers.
- Organised 16,662 extension activities covering 14.18 lakh farmer & rural youth to accelerate the process of dissemination of technologies.
- Documentation of 1999 Indigenous Technical knowledge in various Thematic areas.
- Training of 1275 farm women by NRC Women in Agriculture.
- Implementing Institution Village- Linkage Programme (IVLP) with over 1.0 lakh farm families in 582 villages.
- Providing 736.3 tonnes seeds of improved varieties and 7.93 lakhs of planting materials by Agricultural Technology Information Centre.

Institution ? Village Linkage Programme (IVLP)

- The programme was implemented in 582 villages covering over 1.0 lakh farmers and farm women.

Programme for Women in Agriculture

- National Research Centre for Women in Agriculture has launched 16 research projects during the year and besides 37 training programmes were organized covering 1257 farm women.

AGRICULTURAL EDUCATION

The Council also has responsibility to harmonize agricultural education in the country with excellence in science and technology output for livelihood security and sustainable development. The challenges being addressed are (a) tuning of education with creation of jobs and entrepreneurship, (b) through human resource development, make efforts for conservation of soil, water, vegetation and air and help agricultural sector to attain 4 percent annual rate of growth, (c) responsive to the needs of the client groups, (d) address to the changing scenario w.r.t. W.T.O. and GATT agreements and new global order, and (e) address to the problems of lack of adequate resources at the command of SAUs. All India Entrance Examinations for agriculture and allied science subjects: A Total of 1004 UG students and 1,252 PG students were admitted in different programmes through All India Competitive Examinations conducted by the ICAR. For U.G. Studies, a total of 992 meritorious students received the National Talent Scholarship during the year. A total of 930 meritorious PG students received ICAR Senior Research Fellowships.

National Professorship & National Fellowship: Out of the total ten positions of ICAR National Professors, two were in position. There

are total of 25 positions of National Fellows out of which, 15 were in position during the period. Accreditation: ICAR Accreditation was granted to two ICAR-DUs viz. IVRI, Izatnagar, CIFE, Mumbai and 8 SAUs viz. CSHPKV, Palampur, BSKKV, Dapoli, YSPUH&F, Solan, GBPUA&T, Pantnagar, KAU, Thrissur, PAU. Ludhiana, UAS, Bangalore, UAS, Dharwad.

Niche Area of Excellence: To capitulate on the existing strengths and capabilities of SAUs and ICAR-DUs for human resources development and competence improvement of students for employability, a scheme of providing support for niche area of excellence to SAUs and ICAR-DUs was initiated.

Centers of Advanced Studies: Total 20 trainings were conducted in which 445 faculty members/scientists participated for competence improvements. All CAS have initiated impact analysis of the trainings conducted by them.

Admission of Foreign National: During the year , 154 students from 23 countries were given admissions in various UG, Masters and Ph.D. programmes of agricultural and allied sciences.

Summer/Winter School and Short Courses: During the year, 95 Summer/Winter School and short courses of 10 days and 30 days duration were organized. For the organization of these training programmes support was provided for training of 2375 scientists.

Best Teacher Award: Total 11 faculty members of two SAUs and IARI were presented Best Teacher Awards during the year.

University level Text Book Writing: Two textbooks were sent to DIPA for publication during the year. Thirty titles of textbook are at various stages of processing for a final decision about their approval for publication.

Developmental Grant to SAUs, and DUs: As continuing activity, the Scheme of award of developmental grant to SAUs and DUs was operated including funding for RAWE and other schemes.

Emeritus Scientist Scheme: There are 50 positions of Emeritus Scientists. The Education Division as continuing activity is operating the Scheme. In all 22 new Emeritus Scientists were selected during the year. Fresh applications were again invited for vacancies expected to arise due to the completion of existing projects.

A.P. Cess Fund Schemes and NATP: Total 12 new projects were sanctioned different SAUs/DUs during the year including one Network project sanctioned to IISR as the core institute and all the SAUs, DUs and CAU as centers. Total 75 new project proposals were received AICRP on Home Science: A nutritional guide was successfully developed as a tool for nutritional security for different age groups. Farm cr?che was established in the adopted village by each center for providing desirable stimulation to the under 3 year old children. Drudgery reduction tools were developed A Data-Base on Rural Farm Women after representing 53 agro-climatic zones of nine states was developed

MANAGEMENT AND INFORMATION SERVICES

Financial Assistance to Societies:

To encourage quality publication of research results and effective interaction between scientists, the ICAR has extended partial financial assistance for publication of 46 scientific journals during 2004-2005. It has also extended financial support for organizing 42 National/International Conference/Seminars during 2004-05.

National Academy of Agricultural Sciences (NAAS)

Programmes organized Upto October 2004

- Impact of Inter River Basin Linkages on Fisheries on 21-22 May 2004 in New Delhi.
- Scientific programme coinciding with Annual General Meeting and Foundation Day held at ICAR Auditorium, NASC Complex, on 4-5 June 2004. Scientific presentations by five newly elected Fellows of the Academy and four Young Scientists` Awardees were also made besides Foundation Day Lecture by Dr. S. S. Johl, Vice Chairman, Punjab State Planning Board, on this occasion.
- Designing Strategies for Science and Technology Database for Indian Agriculture organized as Brainstorming Session on 11 July 2004.
- Programmes for the remaining part of the year:
- Workshop on Organic Farming ? Approaches and Possibilities in the Context of Indian Agriculture on 25th November, 2004.
- Brainstorming Session on Research Needs for a Sound Regulatory System of Genetically Engineered Materials for Food and Feed on 1st December, 2004.
- Redefining Agricultural Education and Agricultural Extension Systems in Changed Scenario on 10 Dec 2004.
- Role of Science and Society in Protecting Our Genetic Resources on 7-8 Jan`05.
- Role of ICT in Taking Scientific Knowledge/Technologies to the End Users on 10-11 Jan`05.
- Emerging Issues on Water Management-Who Should Own It - State, Private Sector or Community?

on 18 Jan 2005.
- Brainstorming Session on Aligning National Policies to Meet WTO Challenge in Jan 2005.
- Small Farms Viability: Potential of Contract Farming to be organized as Brainstorming Session.
- VII Agricultural Science Congress to be held at College of Agriculture, Pune, on 16-18 Feb 2005.

Other activities

- Process of election of Fellows and Associates for 2005 completed.
- Screening of nominations for Academy Award completed.
- Organized 2 lectures under special lecture series.
- A 13-member delegation from Central Asian Countries visited NAAS.
- A 4-member delegation of NAAS will visit China under Inter Academy Exchange Programme.

DIRECTORATE OF INFORMATION & PUBLICATION IN AGRICULTURE(DIPA)

Directorate of Information and Publication in Agriculture (DIPA) has brought out total of 112 publications, 86 publications in English and 36 publications in Hindi during the 2004-05, facilities were also created to develop and produce modern information product.

DIPA has brought out 12 periodicals which include research journals (monthly) and semi-technical publications on regular basis. DIPA has also brought out special/Accent issues of their monthly/quarterly journals on various occasions i.e. World Food Day, International Year of Rice and World Environment Day.

Under data management activities DIPA has collected and processed the information on crop varieties released by ICAR, AHD Research Schemes sanctioned by the ICAR, AICRP, Agricultural Institutions in India, Agricultural Colleges, Agricultural Periodicals, Deputation Reports, Research Projects of the ICAR Institutes, AGRIS Database of FAO, National Agricultural Research database.Under electronics publication programme, DIPA has brought out following five CD during 2004-2005.

- Inventory of Indigenous Technical Knowledge in Agriculture ? Document 1
- Inventory of Indigenous Technical Knowledge in Agriculture ? Document 2
- Inventory of Indigenous Technical Knowledge in Agriculture ? Document 2 (Supplement 1)
- Validation of Indigenous Technical Knowledge in Agriculture ? Document 3
- DARE/ICAR Annual Report 2003-2004

During the 2004-2005 revenue of about Rs. 55 lakhs was generated.